

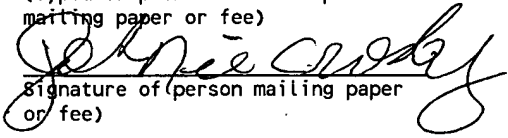
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JOHNIE CROSBY

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Docketing No. 1391/1275

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

In re Application of:

MICHAEL McHALE
GEORGE NICHTULA
CHRISTINE L. CORRIVEAU
WILLIAM WOKAS

Serial No. 08/044,240

Filed: April 7, 1993

For: MULTI-PHASE SHEETED
CHEWING GUM AND METHOD
AND APPARATUS FOR MAKING)

Appeal No. _____

Group Art Unit: 1302

Examiner: C. Sherrer

TRANSMITTAL OF REPLY BRIEF

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Enclosed, in triplicate, is the APPLICANTS' REPLY BRIEF
ON APPEAL, with Exhibits L and M.

Applicants are not requesting an oral hearing, so that this appeal may be decided on the briefs.

Respectfully submitted,

A handwritten signature in cursive script, reading "Maxwell J. Petersen", written over a horizontal line.

Maxwell J. Petersen
Reg. No. 32,772

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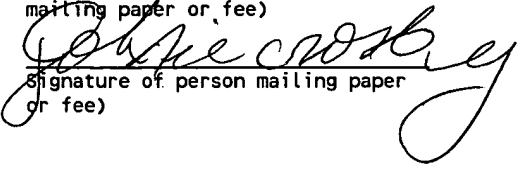
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Filed: April 7, 1993)	Examiner: C. Sherrer
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For: MULTI-PHASE SHEETED)	
CHEWING GUM AND METHOD)	
AND APPARATUS FOR MAKING)	

APPLICANTS' REPLY BRIEF ON APPEAL

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

Pursuant to 37 C.F.R. § 1.93(b), Applicants submit the following reply to the Examiner's Answer dated July 9, 1996. This reply addresses only new points raised by the Examiner, i.e. points not already addressed in Applicants' opening brief.

I. THE EXAMINER CITES THE WRONG AUTHORITY
FOR TREATMENT OF NON-ELECTED SPECIES CLAIMS

The Examiner incorrectly cites MPEP 806.04(h) as support for his position on the treatment of non-elected species claims (Answer, p-2, ¶3). That section applies only to treatment of species claims in separate divisional applications. When the non-elected species claims are in the same application as the elected claims, the non-elected claims are allowable with the underlying base claims, provided they are in proper form. MPEP § 809.02(c) provides:

(2) When a generic claims is subsequently found to be allowable, and not more than a reasonable number of additional species are claimed, treatment should be as follows:

(i) When all claims to each of the additional species are embraced by an allowable generic claim as provided by 37 C.F.R. § 1.141, applicant should be advised of the allowable generic claims and that claims drawn to the non-elected species are no longer withdrawn since they are fully embraced by the allowed generic claim.

(ii) When the case is otherwise ready for issue and there is an allowed generic claim, and applicant has not been previously notified of the allowance of a generic claim, applicant should be advised of the allowance of a generic claim and given a time limit of 1 month to conform all of the claims of the nonelected species to fully embrace an allowed generic claim.

All of Applicants' species claims (whether elected or non-elected) depend from generic claims that are being considered on their merits. Therefore, if the independent claims are allowed, then all of the dependent claims should be allowed. Whapeton Canvas Co., Inc. v. Frontier, Inc. (Exh. L), 870 F.2d 1546, 1553 (Fed. Cir. 1989) ("A dependent claims includes all of the limitations of the claim from which it depends...")

II. APPLICANTS' SUMMARY OF THE INVENTION IS CORRECT

The Examiner wrongly states that Applicants' summary of the invention is improper because it discusses the prior art. 37 C.F.R. § 1.192 requires the opening brief to contain "a concise explanation of the invention defined in the claims...". There would be no invention if the claims were not distinguishable from prior art. Therefore, a brief discussion of prior art, and how the claimed invention differs, is entirely within the rule.

Furthermore, the rule does not limit Applicants' explanation of the invention to the exact words in the specification. Under 35 U.S.C. § 112, claims must be supported in the specification; explanations need not be. In any event, the assertion that only the first chewing gum needs structural integrity (which the Examiner finds unsupported) is suggested by the specification.

The specification expressly states that each segment of product includes some of the first chewing gum mass with some of the second confectionery mass embedded therein and visible with the first mass from the top surface (p. 2 lines 19-21). Preferably, the second confectionery mass is not visible from the bottom surface of the product (p. 5 lines 23-24). Persons skilled in the art would understand from this, that the second mass is supported in the first mass, so that only the first mass needs structural integrity in the preferred embodiment.

III. APPLICANTS' GROUPING OF CLAIMS IN PROPER

The Examiner incorrectly argues that Groups A and B are not distinct because both groups contain the limitation of the undulating pattern. The difference is that the claims of Group B require the undulating pattern, while the claims of Group A recite it as an alternative.

The Examiner incorrectly argues that Groups B and C are not distinct based on an unsupported hypothesis that the claimed products are inherently the same. There is no need for the

specification to describe that which is known to persons skilled in the art, namely:

how the second mass could be smashed down through the first mass so as to be visible from the bottom
(Answer, p. 4)

Persons skilled in the art know that chewing gum products are often very thin, and could be easily penetrated during embedding of secondary confections as listed on page 3 lines 19-23, absent preventative measures. Therefore, the described process does not inherently yield products with the second confection visible at only one surface.

IV. THE EXAMINER'S PRIOR ART ARGUMENTS ARE GROUNDED IN HINDSIGHT AND IMPROPER CLAIM CONSTRUCTION

The Examiner argues that the German reference to Lorenz (Opening Brief, Exh. B) suggests the claimed invention if the Applicants' claims are broadly construed. However, the claim constructions assumed by the Examiner are impermissibly broad, and not consistent with Applicants' specification.

First, the Examiner argues that products in Lorenz having a square cross-section are "sheeted" as required by Applicants' claims (Answer, p. 6). Claim limitations must be construed according to Applicants' specification. Applicants' specification discloses only conventionally sheeted chewing gum products, which are wide and thin, and does not disclose square products. Accordingly, the term "sheeted" should not be given the unconventional meaning suggested by the Examiner.

Second, the Examiner argues that the claim limitation that "the first mass only is visible from the bottom surface of the chewing gum product" should be construed to permit a third mass to be visible from the bottom, along with the first mass (Answer, p. 6). Again, this construction is contrary to the express claim language (i.e., contrary to the word "only"), and is contrary to Applicants' specification (See Figs. 2, 8-9, and 11-12).

Third, the Examiner argues that Lorenz teaches equivalent products and, therefore, the claimed products would have been obvious. However, the products in Lorenz are not structurally or functionally equivalent to those claimed because a) Lorenz does not disclose sheeted products, (b) Lorenz does not disclose products in which a first mass only is visible from a bottom surface, and c) Lorenz does not disclose products wherein the second mass has an undulating pattern, a pattern of cross-stripes, a diagonal pattern, or a pattern of bits as recited in Applicants' independent claims.

Fourth, the Examiner argues that the claimed products could have been made by modifying the process of Lorenz, or at home using a rolling pin and knife. In short, the Examiner relies on Applicants' disclosure as the teaching, and applies impermissible hindsight to speculate on how the invention could have been made given the benefit of Applicants' specification.

As stated by the Federal Circuit in In Re Fine (Exh. M), 5 U.S.P.Q. 2d 1596, 1598 (Fed. Cir. 1988):

To reach a proper conclusion under § 103, the decisionmaker must step backward in time and into the shoes worn by a person having ordinary skill in the art when the invention was unknown and just before it was made. In light of all the evidence, the decisionmaker must then determine whether the claimed invention as a whole would have been obvious at that time to that person (emphasis added).

There is no suggestion in Lorenz or any of the prior art to make the modifications suggested by the Examiner. The Examiner cannot substitute personal opinions and hindsight to fill the gaps that are missing in the prior art.

Fifth, the Examiner argues that the claimed product is obvious no matter how it is produced, notwithstanding that the process disclosed in Lorenz does not produce the claimed product (Answer, p. 8). No product is obvious without a teaching or suggestion in the prior art. Lorenz not only fails to teach the

claimed product, but fails to provide means or motivation for making the claimed product.

Sixth, the Examiner argues that Cherukuri et al teaches multi-layered, multi-colored designs (Answer, pp. 8-9). Again, Cherukuri et al. (Opening Brief, Exh. C) fails to suggest a product in which a second mass is embedded in a first mass so that only the first mass is visible from the bottom surface of the product.

Finally, the Examiner argues that Applicants are seeking to patent a design which has no utility apart from the new design (Answer, pp. 10-13). This argument was raised only on appeal, and there has been no rejection under 35 U.S.C. § 101. The utility of the invention as claimed lies in the fact that the second mass is embedded into the first mass as shown in Fig. 2, so that only the first mass is present at the bottom surface of the product. It is apparent from Fig. 2 that the first mass contains the second mass on three sides, so that the second mass cannot run, or leak through the product, before the product is cooled and the masses harden. This permits great versatility in the selection of the second mass.

As explained on page 3 of the specification, the second mass may be chewing gum, taffy, marshmallow, chocolate, nougat, gelatin-based candy, starch-based candy, and the like. Because the second mass is embedded as claimed, the second mass does not need to (but may) have a self-supporting structural integrity during manufacture and processing of the product. The first mass (which is required to be chewing gum) supports and contains the second mass because chewing gum (by its nature) possesses the required integrity.

In summary, Applicants have claimed a product structure that is not disclosed or suggested in the prior art, and the claimed structure has utility. An obviousness rejection must be based on an objective evaluation of the prior art, and neither the Examiner's personal opinions nor the Applicants'

specification can be used to fill gaps in the prior art. The prior art does not suggest the claimed invention.

Respectfully submitted,



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WAHPETON CANVAS COMPANY,
INC., Plaintiff-Appellant,

v.

FRONTIER, INC.,
Defendant/Cross-Appellant,

Steven C. Schmeichel and Charles M.
Schmeichel d/b/a Agri Cover, Defen-
dants/Cross-Appellants.

Nos. 88-1305, 88-1332 and 88-1333.

United States Court of Appeals,
Federal Circuit.

March 20, 1989.

Rehearings Denied April 17, 1989
and May 18, 1989.

Infringement and tort suit were brought. A jury before the United States District Court for the District of North Dakota, John B. Jones, J., made special interrogatory findings which led to judgment in favor of defendant. On appeal, the Court of Appeals, Markey, Chief Judge, held that: (1) evidence was sufficient to support jury's verdict on issues answered by jury; (2) claims dependent upon interrogatories not answered by jury could not be found to be infringed; (3) claims dependent upon interrogatories not answered at all by jury could not be considered to be infringed or not infringed; and (4) failure of plaintiff to resubmit special interrogatories upon return without answer precluded retrial or resubmission.

Affirmed in part, vacated in part, and remanded.

1. Courts §96(5)

Since consideration of motion for judgment notwithstanding the verdict was not a matter unique to law of patents, Federal Circuit applied law of applicable regional Circuit Court of Appeals to determine appropriate standard of review.

2. Patents §312(6)

Substantial evidence supported jury's special verdict finding that independent claims in truck cover patent had not been infringed by competitor; jury had before it patent prosecution history and testimony directed to whether hooks on subsequently developed cover were equivalent to patent-

ed cover's extension plate, latch plate and latching mechanism.

3. Patents §226

One who does not infringe an independent patent claim cannot infringe a claim dependent on, and thus containing all limitations of, that independent claim.

4. Patents §226

One may infringe in independent patent claim and not infringe a claim dependent upon that independent claim.

5. Patents §324.1

Neither retrial nor remand was compelled to justify patent infringement order in which jury entered special verdicts of noninfringement on claims dependent upon other claims, the interrogatories for which the jury did not answer at all; by failing to obtain answers to independent claims, infringing plaintiff was determined to have failed on its dependent claims.

6. Patents §226

It is axiomatic that dependent claims cannot be found infringed unless claims on which they depend have been found to have been likewise infringed.

7. Patents §324.1

Patent infringement plaintiff's failure to seek resubmission to jury of special interrogatories on which jury returned no answers precluded retrial or resubmission of those issues. Fed.Rules Civ.Proc.Rule 49(a), 28 U.S.C.A.

8. Patents §314(1)

Special interrogatory finding, that device did not infringe independent patent claim, did not compel a finding that device did not infringe a different independent claim, the interrogatory to which the jury did not answer. Fed.Rules Civ.Proc.Rules 49(a), 50(b), 28 U.S.C.A.

9. Federal Civil Procedure §2231

Motions concerning unanswered special interrogatories should not be referred to as for judgment notwithstanding the verdict, but as motions for judgment. Fed. Rules Civ.Proc.Rules 49(a), 50(b), 28 U.S.C.A.

10. Patents §226

During patent infringement action, jury's special interrogatory verdicts on in-

dependent claims of infringement were not dispositive of unanswered special interrogatories to allow court to enter judgment on other independent claims to which no answer had been given, based solely on the answered interrogatories. Fed.Rules Civ. Proc.Rules 49(a), 50(b), 28 U.S.C.A.

11. Trade Regulation §403

Evidence failed to demonstrate that North Dakota recognized tort of unfair competition applicable to patent infringement actions.

Clarence J. Fleming, Jones, Day, Reavis & Pogue, Chicago, Ill., argued for plaintiff-appellant. With him on the brief was Lester J. Savit. Also on the brief were John D. Kelly and Harlan G. Fuglesten, Vogel, Brantner, Kelly, Knutson, Weir & Bye, Ltd., Fargo, N.D.

Douglas J. Williams, Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., Minneapolis, Minn., argued for defendants/cross-appellants. With him on the brief was Robert W. Gutenkauf. Also on the brief was Russell M. Maring, of Fargo, N.D. Richard O. Bartz, Burd, Bartz & Gutenkauf, of Minneapolis, Minn., argued for defendants/cross-appellants. With him on the brief was Ronald H. McLean, Serkland, Lundberg, Erickson, Marcil & McLean, Fargo, N.D. R. Carl Moy, of Merchant, Gould, Smith, Edell, Welter & Schmidt, P.A., of Minneapolis, Minn., entered an appearance for defendants/cross-appellants.

Before MARKEY, Chief Judge,
SMITH and BISSELL, Circuit Judges.

MARKEY, Chief Judge.

Wahpeton Canvas Company (Wahpeton) appeals from a judgment of the United States District Court for the District of North Dakota that Frontier, Inc. (Frontier), and Steven C. Schmeichel and Charles M. Schmeichel, d/b/a Agri Cover (Agri Cover), did not infringe Wahpeton's U.S. Patent No. Re. 31,746 ('746). Frontier cross-ap-

peals a judgment entered on directed verdict on its counterclaims. Agri Cover filed a "cross-appeal" to challenge a ruling that certain evidence was inadmissible. We affirm in part, vacate in part, and remand.

BACKGROUND

Introduction

On April 20, 1982 Wahpeton sued Frontier for infringement of U.S. Patent No. 4,302,043 ('043). Frontier counterclaimed for unfair competition, attempted monopolization, and price discrimination. Facing issues of inventorship and validity, Wahpeton applied for reissue of the '043 patent on September 9, 1982. On October 4, 1983 Wahpeton sued Agri Cover for infringement of the '043 patent. The suits were consolidated on March 13, 1984. The reissue application became United States Patent No. Re. 31,746 ('746) on November 27, 1984. The '746 patent was then substituted for the '043 patent in the infringement suit.

The Proceedings

Liability was tried to a jury required to return a special verdict under Rule 49(a), Fed.R.Civ.P. Trial began on August 10, 1987. The jury was asked to check "yes" or "no" alongside a series of questions, including a series of questions on infringement that gave just the claim number and did not identify the claim as "independent" or "dependent". On August 25th the jury returned answers to some questions and not to others. The jury's responses were: (1) Agri Cover had not infringed [independent] claims 1 or 11; (2) Agri Cover had not infringed [dependent] claims 2-4, 6, 9, 10, 12, 13, 16-19, 22-25, or 27-31; (3) it could not answer on whether Agri Cover had infringed [independent] claims 14 or 21; (4) it could not answer on whether Agri Cover had infringed [dependent] claims 7, 15, 20, 26, or 32; (5) Frontier had not infringed [independent] claims 1, 11, or 14; (6) Frontier had not infringed [dependent] claims 2-4, 6-10, 12, 13, 15-20, 22-25, or 27-32; (7) it could not answer on whether Frontier infringed claim 21; (8) the '746 patent was not inequitably procured;¹ (9) claims 1-4,

jury. *Quaker City Gear Works, Inc. v. Skil Corp.*,

1. Though we must take the appeal as it comes, Rule 49(a) provides for fact inquiries to the

6-13 and 15-32 were not invalid; and (10) it could not answer on whether claim 14 was not invalid.

On July 6, 1987, the district court had ordered a separate trial on Frontier's counterclaims. That trial began on August 25, 1988, immediately following the infringement trial. Frontier closed its case on August 27th and the district court directed a verdict in favor of Wahpeton.

On September 3, 1987 Wahpeton moved "under Rules 50(b)" and Rule 59, Fed.R. Civ.P. though there were no answers to some questions to which its motions were directed, and for new trial. Recast for clarity, Wahpeton's motions were: (1) for judgment notwithstanding the verdict (JNOV) that Agri Cover and Frontier infringed all the claims the jury found non-infringed; (2) for judgment that Agri Cover infringed claims 7, 14, 15, 20, 21, 26, and 32 on which the jury did not decide; and (3) for judgment that Frontier infringed claim 21 on which the jury did not decide.

On September 9, 1987 Agri Cover moved "under Rule 50(b)"—actually for judgment—that it had not infringed the claims on which the jury did not decide. On September 14, 1987 Frontier moved "under Rule 50(b)"—actually for judgment—that it had not infringed claim 21.

In a February 8, 1988 telephone conference lasting 10 minutes, the district court said: (1) it found no infringement of claim 21 by Frontier because Frontier "went back to the old-fashioned hooks, which didn't look good on the truck"; (2) it found no infringement by Agri Cover of claims 7, 14, 15, 20, 21, 26, or 32 because "the jury reached a sufficient number of findings of no infringement to lead the court to the judgment and view" that there was no infringement of the claims on which the jury did not answer; (3) that the latter judgment accepted and was consistent with the

findings of the jury to the extent made; and (4) Wahpeton "had a valid and enforceable patent." The district court characterized both accused devices as "inferior" to Wahpeton's cover.²

In an "ORDER ON POST-TRIAL MOTIONS" of February 11, 1988, the district court, without explanation, denied Wahpeton's motions and granted those of Agri Cover and Frontier.

On February 16, 1988, the district court entered this judgment:

IT IS ORDERED AND ADJUDGED pursuant to the Special Verdict filed August 25, 1987, all claims in plaintiff's U.S. Patent No. RE 31,746 are determined to be valid and enforceable; defendant Frontier, Inc.'s Roll-Tight roll-up tarp system does not infringe claims 1-4, 6-20, 22-25, and 27-31 of plaintiff's '746 patent; and defendants Steven C. Schmeichel and Charles M. Schmeichel's FASLOC roll-up tarp system does not infringe claims 1-4, 6, 9-13, 16-19, 22-25, and 27-31 of plaintiff's '746 patent.

IT IS FURTHER ORDERED pursuant to the Court's Order on Post Trial Motions filed February 11, 1988, that defendant Frontier, Inc.'s Roll-Tight roll-up tarp system does not infringe claim 21 of plaintiff's '746 patent; and defendants Steven C. Schmeichel and Charles M. Schmeichel's FASLOC roll-up tarp system does not infringe claims 7, 14, 15, 20, 21, 26 and 32 of plaintiff's '746 patent.

IT IS FURTHER ORDERED directed verdict be entered against the defendant Frontier, Inc. on its counterclaim against plaintiff.

The Claimed And Accused Devices

The claimed device (Appendix, figure 1) and the accused devices of Agri Cover³ and Frontier⁴ are roll-up truck box covers. One side edge of the cover is attached to a

² 747 F.2d 1446, 1453, 223 USPQ 1161, 1165 (Fed. Cir.1984), cert. denied, 471 U.S. 1136, 105 S.Ct. 2676, 86 L.Ed.2d 694 (1985), and inequitable conduct is an equitable issue triable by the judge. *Kingsdown Medical Consultants, Ltd. v. Hollister, Inc.*, 863 F.2d 867, 876, 9 USPQ2d 1384, 1392 (Fed.Cir.1988) (in banc); *Gardco Mfg., Inc. v. Herst Lighting Co.*, 820 F.2d 1209, 1212, 2 USPQ2d 2015, 2018 (Fed.Cir.1987).

² The appendix reflects no effort of counsel to point out that inferior infringement is still infringement. See *Lairam Corp. v. Cambridge Wire Cloth Co.*, 863 F.2d 855, 859, 9 USPQ2d 1289, 1294 (Fed.Cir.1988).

³ Disclosed in United States Patent No. 4,505,512.

⁴ Disclosed in United States Patent No. 4,691,957.

longitudinal upper edge of the truck box and the other side, or free, edge of the cover is associated with a roll tube. A universal joint connects the roll tube to a crank turnable from the ground to roll and unroll the cover. An important element is a latching means, to secure the cover in place. Securing the crank locks the cover in place. An elastic tensioning cord keeps the cover taut.

The latching means disclosed in the '746 patent is a plate mounted along and angularly depending from the entire upper edge of the truck box opposite that to which the cover is attached. Latching is accomplished by turning the crank counterclockwise to unroll the cover over the truck box and plate until the roll tube dangles below the plate, then continuing to turn the crank counterclockwise and rerolling the tube in the same direction to reroll the cover onto the tube and thus to draw the tube upwardly until it securely engages the underside of the plate and is wedged between the plate and the truck wall. (Appendix, figures 2, 3).

Agri Cover's device uses straps and hooks. The free edge of the cover is not attached directly to the roll tube; straps are interposed instead between the cover and the roll tube. Latching is accomplished by unrolling the cover until the roll tube dangles on its straps below the hooks, and then continuing to turn the roll tube in the same direction to roll the straps onto the roll tube, thus drawing the tube upwardly until it engages within the hooks. (Appendix, figure 4).

Frontier's device employs an additional bar, hooks, and straps. The free edge of the cover is attached to a roll tube, but also attached to the roll tube are straps that are in turn attached to the additional bar. Latching is accomplished by unrolling the cover and continuing to roll the tube in the same direction to reroll the cover on the roll tube, the straps thus drawing the additional bar upwardly until it engages within the hooks. (Appendix, figures 5, 6).

The '746 Patent Claims and Disputed Limitations

There are 32 claims in the '746 patent, 19 having been added by reissue. All but

claims 5 and 8 were asserted against Agri Cover. All but claims 5, 26, and 32 were asserted against Frontier. All claims are drawn to apparatus and none is drawn to method steps, e.g. reverse rolling.

The '746 patent has only four independent claims. The infringement dispute centered on three claim limitations (the disputed limitations): (1) the connection between the roll tube and cover, (2) the latching means, and (3) the wedging relationship between the roll tube and latching means. Those disputed limitations are emphasized in the following reproductions of the four independent claims.

1. A cover assembly for an elongated body having an elongated opening, comprising:

a flexible covering material having a longitudinal dimension approximately equal to the longitudinal dimension of said opening and having a lateral dimension slightly greater than the lateral dimension of said opening, said covering material having one longitudinal edge adapted for attachment to one longitudinal edge of said opening;

a bar member attached to the other longitudinal edge of said covering material;

crank means attached to said bar member for rolling said bar member transversely of said body for rolling or unrolling said covering material, and

an extension plate adapted for engagement to an opposite longitudinal edge of said opening, said plate having a surface extending away from said opening for holding said bar against said body when said bar is rolled between said surface and said body (emphasis added).

11. In combination, a covering apparatus for opened top bodies including a covering material connected to said body along one longitudinal side thereof; roll means for rolling said covering material laterally across said open top; and a latch plate attached along a second longitudinal [edge] side of said body, said latch plate being canted outwardly

and downwardly from said second longitudinal edge of said body for providing an area for wedging said roll means (emphasis added).

14. A cover assembly for an elongated body defining an elongated opening, comprising:

a flexible covering material having a longitudinal dimension approximately corresponding to the longitudinal dimension of said opening and having a lateral dimension greater than the lateral dimension of said opening;

means attaching one longitudinal edge of said covering material adjacent one longitudinal edge of said opening;

a bar member connected to the covering material adjacent the other longitudinal edge of the covering material;

crank means operatively connected to one side of said bar member for rolling said bar member transversely of said body for rolling or unrolling said covering material;

resilient means, one end of said resilient means being attached to said bar member on the opposite side of said bar member, the other end of said resilient means being attached to said body, said resilient means extending over said body when said covering material is in a rolled condition to expose said opening, and said resilient means applying tension to said bar member during unrolling of the covering material as said opening is being covered, and;

latching means supported on said body on the side of said body opposite the side defining said one longitudinal edge of said opening, *said latching means serving to secure said covering material in place when said opening is covered;*

and wherein said crank means and said resilient means cooperate to secure said covering material relative to said latching means (emphasis added).

5. Agri Cover "cross-appeals" the exclusion of two portions of DA 168 (video tape of a "Hawkeye Eagle" cover). In light of the district court's finding that the excluded portions show the cover operating in a manner contrary to its intended operation as admitted by Agri Cover's own witness, and in the absence of proof that it

21. A cover assembly for an elongated body defining an elongated opening, comprising:

a flexible covering material having a longitudinal dimension approximately corresponding to the longitudinal dimension of said opening and having a lateral dimension greater than the lateral dimension of said opening;

means attaching one longitudinal edge of said covering material adjacent one longitudinal edge of said opening;

a bar member connected to the covering material adjacent the other longitudinal edge of the covering material;

crank means operatively connected to one side of said bar member for rolling said bar member transversely of said body for rolling or unrolling said covering material;

said crank means including an elongated operating shaft, said shaft extending downwardly from said bar member,

retainer means for said shaft mounted on said body for holding said shaft in position;

latching means supported on said body on the side of said body opposite the side defining said one longitudinal edge of said opening, *said crank means operating to secure said covering material relative to said latching means to secure said covering material in place when said opening is covered,*

and wherein subsequent movement of said shaft into holding relationship with said retainer means operates to apply tension to said bar member to *tighten the bar member relative to said latching means* and to thereby apply tension to said covering material (emphasis added).

ISSUES⁶

1. Whether the district court erred in denying JNOV in respect of independent

was ever so operated in the prior art, see *Eibel Process Co. v. Minnesota & Ontario Paper Co.*, 261 U.S. 45, 66, 43 S.Ct. 322, 329, 67 L.Ed. 523 (1923), we cannot say the exclusion was an abuse of discretion possibly affecting the result.

claims, and claims dependent thereon, on which the jury answered as part of the special verdict.

2. Whether the district court erred in denying JNOV in respect of claims on which the jury answered as part of the special verdict but which were dependent on claims on which the jury returned no answers.

3. Whether the district court erred in entering a judgment of non-infringement of the claims on which the jury did not return answers.

4. Whether the district court erred in directing a verdict for Wahpeton on Frontier's counterclaims.

OPINION

Introduction

The present is another appeal following a trial process plagued with a plethora of pusillanimous presentations. Thirty claims were asserted against one defendant's product and 29 against the other differing product; two claims against only the first; one claim against only the second; and one claim against neither. Though the trial judge, reflecting his complete candor and considerate courtesy, noted that this was his first patent case, admitted unfamiliarity with patent jargon, and praised counsel for their "patience", the appendix reflects not even a minimal concern of counsel for simplifying and clarifying the infringement issue. Many of Wahpeton's claims are a semantic mish-mash, containing terms not in the specification, adding numerous innocuous details differently labeled in dependent claims, and including the same struc-

ture twice in a single claim by changing its label.⁶

In *Quaker City Gear Works, Inc. v. Skil Corp.*, 747 F.2d 1446, 1453 n. 6, 223 USPQ 1161, 1165 n. 6 (Fed.Cir.1984), this court noted the usefulness of Rule 49(a) in allowing a court to save the "good" part of a trial.⁷ The special verdict here is comprised of jury answers on independent claims, on claims dependent on those claims, and on claims dependent on claims in respect of which the jury returned no answers. Also presented for review is the judgment entered on claims respecting which the jury did not answer, and the judgment entered on directed verdict on Frontier's counterclaims.

1. Denial of Wahpeton's Motion For JNOV In Respect Of Claims 1, 11, 14 and Their Dependent Claims

[1] A motion for JNOV should be denied *unless* a judge, after viewing the evidence in the light most favorable to the non-movant, drawing all reasonable inferences therefrom in favor of the non-movant, and refraining from weighing the credibility of the evidence or substituting the court's view for that of the jury, concludes that judgment cannot be entered on the jury verdict. See *Taylor v. Cochran*, 830 F.2d 900, 902 (8th Cir.1987), *cert. denied*, — U.S. —, 108 S.Ct. 1476, 99 L.Ed.2d 704 (1988); *Rogers v. Allis-Chalmers Credit Corp.*, 679 F.2d 138, 140 (8th Cir. 1982); *Chicago Great Western Ry. v. Casura*, 234 F.2d 441, 447 (8th Cir.1956). The district court did not articulate those decisional parameters here, but Wahpeton has

6. Claim 14 includes "a bar member connected to the covering material adjacent the other longitudinal edge of the covering material"; claim 15 says "The invention as defined in claim 14 including engaging means attached to said other longitudinal edge of said covering material"; and claim 16 says, in its entirety, "The invention as defined in claim 15 wherein said engaging means comprises said bar member." Apart from the absence from the specification of "engaging means", claim 16 includes a "bar mem-

ber" and an "engaging means" and the "engaging means comprises said bar member". Presentation of the infringement issue on an overgrown claims jungle to a jury and judge at trial, and to this court, is an unprofessional exercise not in clarification but in obfuscation.

7. See Brown, *Federal Special Verdicts: The Doubt Eliminator*, 44 F.R.D. 338, 347-48 (1968).

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not shown that their application would require either the district court or this court to so conclude.⁸ Wahpeton submits a one-sided jury argument to this court, pointing only to its version of the evidence it submitted in trying to prove: (1) Agri Cover's hooks are the equivalent of the extension plate of claim 1 and latch plate of claim 11; (2) Frontier's hooks are the equivalent of the extension plate of claim 1, latch plate of claim 11, and latching means of claim 14; (3) the accused roll tubes are "wedged" in the hooks; and (4) straps of the accused devices are equivalent to the claimed attachment to the roll tube.

[2] Evidently laboring under the delusion that this court is at liberty to substitute its selection of credible evidence for the selection made by the jury, Wahpeton simply disregards the substantial evidence presented to the jury that certain disputed limitations of claims 1, 11, and 14 and their equivalents were *absent* from the applicable accused devices. The jury had before it the prosecution history and testimony directed to: (1) the lack of equivalency of the hooks with the extension plate, latch plate, and latching means of claims 1, 11, and 14; (2) the absence of wedging action between the roll tube and hooks; and (3) the absence of the claimed attachment of the cover to the roll tube.

Whether judges of this court in the conduct of a bench trial might have found the fact of infringement of claims 1, 11, and 14,

literally or under the doctrine of equivalents, is not the question. *Fromson v. Western Litho Plate and Supply Co.*, 853 F.2d 1568, 1570, 7 USPQ2d 1606, 1608 (Fed. Cir.1988). In view of all the evidence, from which the jury had every right to select that to accept, we cannot say the jury's answers that Agri Cover had not infringed independent claims 1 and 11 and that Frontier had not infringed independent claims 1, 11 and 14, were not supported by substantial evidence.

[3, 4] Little need be said in treating the special verdict on claims dependent on claims 1, 11, and 14. The proper denial of JNOV respecting Agri Cover and claims 1 and 11 requires a denial respecting claims dependent on claims 1 or 11 (2-4, 6, 7, 9, 10, 12, and 13). The proper denial of JNOV respecting Frontier and claims 1, 11, and 14 requires a denial respecting claims dependent on those claims (2-4, 6-10, 12, 13, 15-20 and 27-31).⁹

2. Denial Of Wahpeton's Motion For JNOV In Respect Of Claims Dependent On Claims On Which Jury Did Not Answer

[5] We next treat the special verdict of non-infringement by Agri Cover of nine claims (16-19, 27-31) dependent on claim 14 and four claims (22-25) dependent on claim 21, and non-infringement by Frontier of four claims (22-25) dependent on claim 21.¹⁰

a plethora of dependent claims in Wahpeton's motion and appeal is difficult to understand. Infringement of an independent claim would result in the same damage award as would infringement of all claims dependent thereon and non-infringement of an independent claim carries with it non-infringement of all claims dependent thereon.

If validity were in issue, dependent claims might serve a useful role, for a necessarily narrower dependent claim may be valid when the claim from which it depends is not. Like many, if not most, dependent claims, most of those present here present minute structural details but were allowed because they contain all the limitations of allowed claims from which they depend.

8. Consideration of a motion for JNOV is not a matter unique to the law of patents. Consequently, we apply the law of the regional Circuit, here that of the United States Court of Appeals for the Eighth Circuit. *Sjolund v. Musland*, 847 F.2d 1573, 1576, 6 USPQ2d 2020, 2023 (Fed.Cir.1988).

9. One may infringe an independent claim and not infringe a claim dependent on that claim. The reverse is not true. One who does not infringe an independent claim cannot infringe a claim dependent on (and thus containing all the limitations of) that claim. *Teledyne McCormick Selph v. United States*, 558 F.2d 1000, 1004, 214 Ct.Cl. 672 (1977).

10. Because a reversal on appeal on one independent claim would give Wahpeton all it needs for victory, submission of the infringement issue on

That the jury returned no answers on claims 14 and 21 re Agri Cover and claim 21 re Frontier would preclude answers of infringement on claims dependent thereon, hence the non-answers on claims 14 and 21 serve in this section as a means of identifying part of the special verdict and would be of moment only if the jury had found the dependent claims infringed.

The jury did not, of course, explain its answers on any of these dependent claims and the district court did not discuss them. Nor will we speculate on why the jury returned answers of non-infringement of these dependent claims. See *Tennant v. Peoria & Pekin Union Ry.*, 321 U.S. 29, 35, 64 S.Ct. 409, 412, 88 L.Ed. 520 (1944) (not function of court to search record for conflicting evidence to take case from jury).

The jury was properly instructed that a dependent claim includes all the limitations of the claim from which it depends, and must be presumed to have determined that the accused devices lacked one or more of the structural limitations of these claims as the devices and claims were presented through the witnesses, exhibits, and arguments of counsel. The district court, who saw and heard the same witnesses, exhibits, and arguments, denied Wahpeton's motion for JNOV on these claims. Wahpeton, who had the burden of proof, has not argued that the jury was not properly instructed, or was prejudiced, or that the trial was in any manner unfairly conducted. Whatever may be the correctness in the abstract of the jury's answers on each of claims 16-19, 22-25, and 27-31, it is not possible in the peculiar posture of this case for us now to say that the jury was required to find them infringed. Nor was it possible for the district court to grant Wahpeton's motion for JNOV, i.e., to issue a judgment that, read in their entirety as they must be, these claims were infringed.

[6] Alleging "jury confusion" (while accepting no responsibility for any such con-

fusion), Wahpeton improperly requests this appellate court to find infringement of, i.e. to overturn the jury's answers on, dependent claims 16-19, 22-25, and 27-31. It is axiomatic that dependent claims cannot be found infringed unless the claims from which they depend have been found to have been infringed; hence Wahpeton's zeal for a determination of infringement of claims dependent on independent claims 14 and 21 is necessarily doomed by its failure to obtain the determination of infringement of those independent claims.

[7] Wahpeton has not requested, and has shown no reason for, a retrial or a remand on these dependent claims. Nor do we deem such a retrial either compelled or justified. See *Hartness Int'l, Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed.Cir.1987) (remand unnecessary on infringement of dependent claim because damages would not be increased). If, in further proceedings, infringement of either claim 14 or claim 21 be found, Wahpeton may, for reasons best known to itself, be disappointed by the absence of what would be useless and unnecessary jury answers finding infringement of claims dependent on claims 14 or 21. If claims 14 and 21 be found not infringed, the present jury answers on these dependent claims would be compelled. For the source of any disappointment, Wahpeton has only to look to itself and its failure to obtain answers in this trial on independent claims 14 and 21.¹¹

For the reasons set forth in sections 1 and 2 above, the denial of Wahpeton's motion for JNOV, and the consequent entry of judgment on the jury's special verdict, will be affirmed.

3. Entry of Judgment On The Order Respecting Claims On Which The Jury Did Not Decide

[8] Judgment may be entered when a jury functioning under Rule 49(a) has re-

on remand to again submit these dependent claims to a jury; there must, however, be a good reason to deprive Agri Cover and Frontier of the answers of non-infringement they won on these claims. See 5A J. Moore & J. Lucas, *Moore's Federal Practice* ¶ 49.03[4] (2d ed.1988).

11. The record reflects no effort of Wahpeton to seek re-submission to the jury of any interrogatory on which the jury returned no answer.

As indicated in *Franki Foundation Co. v. Alger-Rau & Associates, Inc.*, 513 F.2d 581, 587 n. 10 (3d Cir.1975), the district court has discretion

turned answers to some but not all interrogatories if the answers returned are dispositive of the case. *Skyway Aviation Corp. v. Minneapolis, Northfield & S. Ry.*, 326 F.2d 701, 704 (8th Cir.1964) (plaintiff's acts not proximate cause; absence of answer on negligence irrelevant); *Quaker City Gear*, 747 F.2d at 1453, 223 USPQ at 1165; *Kissell v. Westinghouse Elec. Corp.*, 367 F.2d 375, 376 (1st Cir.1966); *Black v. Riker-Maxson Corp.*, 401 F.Supp. 693, 696 (S.D.N.Y.1975); 9 C. Wright & A. Miller, *Federal Practice and Procedure* § 2510 (1971 & 1988 supp.). Here the answers returned, with two exceptions,¹² cannot on this record be accepted as resolving the questions not answered by the jury because differences in the claims make a contrary finding at least possible. Stated differently, a finding that a device does not infringe an independent claim on which the jury answered cannot in this case be said to compel a finding that that device does not infringe a different independent claim on which the jury did not answer.

[9] Reference to the motions on unanswered interrogatories as "for JNOV" would be inapt. A special verdict is a compilation of answers returned. *Quaker City*, 747 F.2d at 1453, 223 USPQ at 1165. A motion "for JNOV" seeks a judgment "notwithstanding" that verdict. The motions on claims on which the jury did not

answer were simply motions for judgment.¹³

[10] The last sentence of Rule 50(b) reads: "If no verdict was returned the court may direct the entry of judgment as if the requested verdict had been directed or may order a new trial."¹⁴ Courts have held that in some circumstances judgment may be entered when the jury cannot arrive at a general verdict. *Thompson v. Lillehei*, 273 F.2d 376, 378 (8th Cir.1959); *Noonan v. Midland Capital Corp.*, 453 F.2d 459, 463 (2d Cir.), cert. denied, 406 U.S. 945, 92 S.Ct. 2044, 32 L.Ed.2d 333 (1972); *O'Brien v. Thall*, 283 F.2d 741, 742, 127 USPQ 296, 297 (2d Cir.1960); *Hedgepeth v. Fruehauf Corp.*, 634 F.Supp. 93, 95 (S.D.Miss.1986), aff'd, 813 F.2d 405 (5th Cir.1987); *Gonzalez v. Avon Prods., Inc.*, 648 F.Supp. 1404, 1405 (D.Del.1986), aff'd, 822 F.2d 53 (3d Cir.1987).

No Circuit has applied the last sentence of 50(b) to unanswered questions when a special verdict is formed of answers to only some questions.¹⁵ The reason may be that "no verdict" (emphasis added) is problematic where a verdict was returned. To apply the sentence would require application of "no verdict" only to the unanswered questions.¹⁶ In all events, the absence of jury answers raises a denial of jury trial question.

12. The jury's answer of non-infringement by Agri Cover of claims 25 and 31 are dispositive of claims 26 and 32 which depend respectively from those claims and on which the jury did not answer with respect to Agri Cover. The district court's judgment of non-infringement by Agri Cover of claims 26 and 32 must therefore be affirmed.

13. At the end of its phone conversation, the district court correctly noted that the discharge of the jury made the parties' "directed verdict" terminology inappropriate and stated: "It's the court's view that the proper procedure is to enter judgment in accordance with the motions of Frontier and Schmeichels on the issue of no infringement and I have done so." The court in its judgment, *supra*, "ADJUDGED" claims on which the jury answered, "ORDERED" judgment on claims on which the jury did not, and ordered the clerk to "enter final judgment in accordance with the verdict of the jury and this order."

14. In view of Rule 50(b)'s title, its last sentence is rhetorically misplaced, for if there is "no" verdict there is nothing for a judgment to "notwithstanding".

15. The label "verdict" in Rule 49(a) is an unfortunate choice. Special verdicts are just jury answers to factual interrogatories. Rule 49(a) Fed.R.Civ.P. "Verdict" was apparently employed because returning verdicts is what juries do. Doubtless the drafters expected courts and counsel to distinguish between a general verdict, naked or accompanied by answers to interrogatories under Rule 49(b) (in returning either of which a jury finds the facts, applies the law as instructed, and designates the winning side), and a special verdict (in returning which a jury supplies only written answers to fact questions).

16. Two district courts, neither in the Eighth Circuit, have dealt generally with circumstances similar to those presented here. See *Landis v. Delp*, 327 F.Supp. 766 (E.D.Pa.1971); *Sloane v. Powell*, 69 F.Supp. 1016 (E.D.N.Y.1947).

Whatever the terminological difficulties, we need not here decide the applicability of the last sentence of 50(b). Neither the judge nor the parties proceeded in accord with that sentence. The court proceeded on its own to supply its own answers to the unanswered inquiries and disposed of that part of the case by a judgment entered on the post-trial motions. That judgment has been entered and appealed from. The sole question remaining is whether that judgment was entered in error.

As was said in *Union Pacific Railroad v. Bridal Veil Lumber Co.*, 219 F.2d 825, 832 (9th Cir.1955), *cert. denied*, 350 U.S. 981, 76 S.Ct. 466, 100 L.Ed. 849 (1956): "To do other than send the case back for a new trial when decision on a vital issue by the jury is missing would deprive the parties of the jury trial to which they are entitled constitutionally." The language "when decision on a vital issue by the jury is missing" states a standard not meaningfully different from the Eighth Circuit's remand-only-if-the-jury's-answers-are-dispositive standard expressed in *Skyway Aviation*, 326 F.2d at 704. Whether claim 14 or claim 21 was infringed is clearly a "vital" issue. The key here is whether Wahpeton has been improperly denied a jury trial on infringement by Agri Cover of claims 14, 15, 20, and 21 and on infringement by Frontier of claim 21.

The district court incorrectly reasoned that the jury answered on "a sufficient number of claims" to support the court's judgment of non-infringement on the remaining claims. Valid claims are not fungible; hence the question is not the number of claims involved in the special verdict, but whether the answers that comprise the special verdict are dispositive of the unanswered interrogatories on infringement of claims 14, 15, 20 and 21 by Agri Cover and of claim 21 by Frontier. The district court said nothing in its phone conversation or order about differences between the sets of claims on which the jury answered and the

sets on which it did not, or about the doctrine of equivalents, or about any effect of prior art or prosecution history on application of that doctrine, or about any factors that might establish the dispositive nature of the jury's answers that comprised the special verdict.

The claim language differs in the two sets of claims. Claims 14 and 21 set forth a "latching means", a limitation broader than the "extension plate" of claim 1 and "latch plate" of claim 11. Neither claim 14 nor claim 21 requires a wedging means, whereas claim 1 calls for an extending surface "for holding said bar [member] against said body," and claim 11 calls for "an area for wedging." We make no comment, of course, on the effect of the prior art and prosecution history on the range of equivalents or scope to which claims 14 and 21 are entitled, and no comment on the infringement issue. We hold only that the jury's answers on claims 1 and 11 (Agri Cover) and 1, 11, and 14 (Frontier) are not so dispositive of the unanswered questions as to serve as the sole support for the district court's judgment on those unanswered questions. See *Skyway Aviation*, 326 F.2d at 704.

The district court's judgment on claims 14, 15, 20 and 21 respecting Agri Cover and claim 21 respecting Frontier will be vacated and the case will be remanded with instructions to grant a new trial on the issue of infringement of at least those claims.¹⁷

4. Counterclaims

[11] We have fully considered Frontier's cross-appeals on unfair competition under state law, attempted monopolization under Section 2 of the Sherman Act, and price discrimination under the Robinson-Patman Act. We conclude that the district court, for the reasons it cited, correctly entered a directed verdict on Frontier's claims.

Frontier offered no authority indicating that North Dakota law recognizes the tort

17. In a post-trial colloquy, the district court expressed an intent to declare a mistrial (and presumably grant a new trial) in respect of answers not returned. That course was unquestionably open to the district court but the intent to follow it was apparently abandoned.

In *Iacurci v. Lummus Co.*, 387 U.S. 86, 88, 87 S.Ct. 1423, 1424, 18 L.Ed.2d 581 (1967), the Court indicated that the district court was in the best position to decide on a new trial, but there the district court had not, as it did here, already considered and denied a motion for new trial.

of unfair competition as described by Frontier. Before us, Frontier cites only *Biever, Drees & Nordell v. Coutts*, 305 N.W.2d 33 (N.D.1981), which dealt with an entirely different cause of action (breach of trust). Frontier submitted no evidence of unlawful patent enforcement or other basis for a Sherman Act violation, and no evidence of price discrimination that would lessen, injure or destroy competition. Absent evidence sufficient to go to the jury, a directed verdict was required.

CONCLUSION

For the foregoing reasons: (1) the denial of JNOV and judgment entered on the special verdict of non-infringement of claims 1-4, 6, 7, 9-13, 16-19 and 22-32 by Agri

Cover and claims 1-4, 6-20 and 27-31 by Frontier are affirmed; (2) the judgment of non-infringement of claims 14, 15, 20 and 21 by Agri Cover and claim 21 by Frontier is vacated; (3) the judgment entered on the directed verdict on the counterclaims is affirmed; and (4) the case is remanded with instructions to grant a new trial, at least on the issue of infringement by Agri Cover of claims 14, 15, 20, and 21 and by Frontier of claim 21.

COSTS

Each party shall bear its own costs.

AFFIRMED IN PART, VACATED IN PART, AND REMANDED.

Fig. 1

Fig. 1

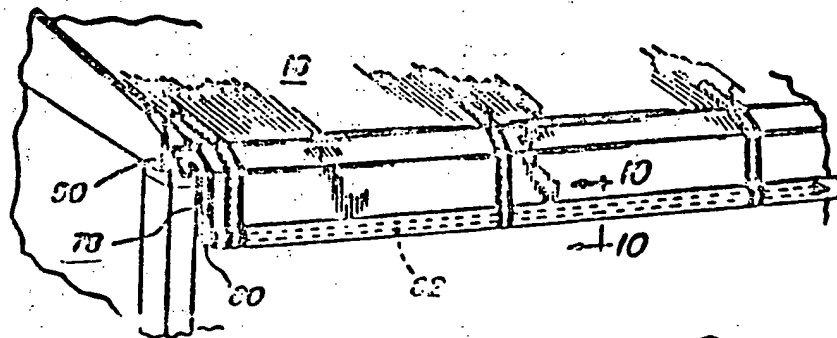


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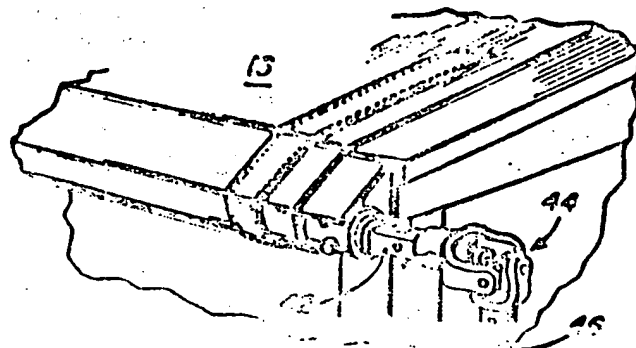


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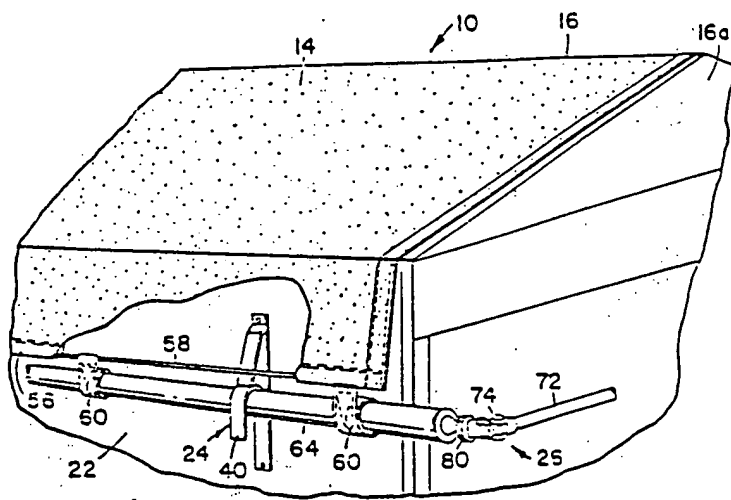


Fig. 4

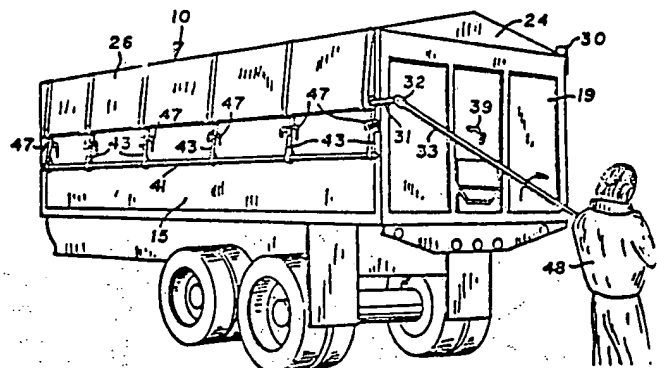


Fig. 5

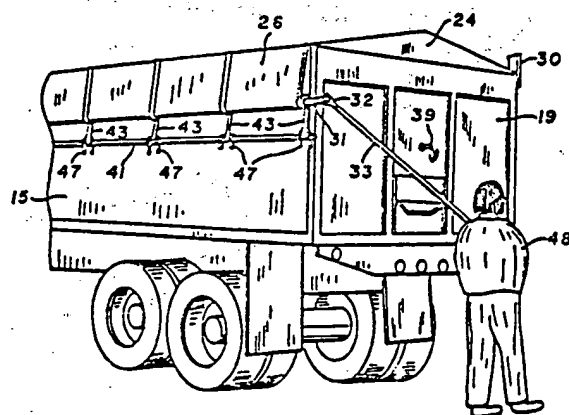


Fig. 6

present. For these reasons, the court adopts the modified jurisdiction test.⁷

[2] The court determines, without hesitation, that Turbo Tek has the continuous and systematic contacts with North Carolina necessary to support general jurisdiction and thus venue. In the last year, Turbo Tek has sold in North Carolina 30,570 of its pressure washers, 24,720 bottles of soft suds, 7,164 bottles of hard suds, 81,678 bottles of exploding wax, and 864 unspecified products. North Carolina accounts for 3.6% of Turbo Tek's total sales, yielding Turbo Tek over \$300,000.00 in the last year. Turbo Tek transports these goods directly from its facilities in California to its customers in North Carolina. In addition, Turbo Tek has a sales representative who permanently resides in North Carolina and solicits sales throughout the state. Turbo Tek's Vice

⁷ The Fourth Circuit has not explicitly addressed the proper test for determining "doing business" venue. The two Fourth Circuit cases mentioning "doing business" venue have merely recited the contacts with the forum and then concluded that venue is proper. See *In Re Ralston Purina Co.*, 726 F.2d 1002, 1003 (4th Cir. 1984) (recites contacts and then merely states that "Purina 'is doing business' under 28 U.S.C. §1391(c)"); *Du-Al Corp. v. Rudolph Beaver, Inc.*, 540 F.2d 1230, 1231, 1233 (4th Cir. 1976) (recites contacts then merely states that "collectively these activities constituted 'doing business'"). Arguably, by explaining that the contacts satisfied personal jurisdiction and then concluding that these same contacts amounted to "doing business", *Du-Al* equates venue and personal jurisdiction. A few cases have interpreted *Du-Al* as equating venue and personal jurisdiction. See e.g. *Precision Rubber Products v. George McCarthy, Inc.*, 605 F.Supp. 473, 477 (M.D.Tenn. 1984). 1985); *Witzel v. Chartered Systems Corp. of N.Y.*, 490 F.Supp. 343, 348 (D.Minn. 1980). See also Note, 65 Tex.L.Rev. at n.57 and accompanying text (interprets *Du-Al* as equating venue and personal jurisdiction). Yet, a recent case states that *Du-Al* "might be said to have adopted this view [i.e. the jurisdiction test] . . . although less clearly . . . and with less discussion [than the other cases adopting the view]." *Maybelline Co.*, 813 F.2d at n.5 [2 USPQ2d at 1127 n.5] (emphasis added). Moreover, *Du-Al* was decided before the Supreme Court, in *Leroy*, expressed that venue statutes are designed to protect the defendant from an inconvenient forum. In sum, given the inexplicitness of *Du-Al*, the conflicting interpretations of *Du-Al* by other courts, and the fact *Du-Al* was decided before *Leroy*, this court may appropriately attempt to refine the "doing business" standard in the this circuit. As such, the court herein adopts the modified jurisdiction test. The court notes, however, that venue is proper in the instant case under either the jurisdiction or the

President has, on at least one occasion, visited customers within North Carolina. Furthermore, Turbo Tek has run television advertisements on seventeen local television stations in North Carolina. Finally, Turbo Tek operates a mail order business, under the name Distribution Systems International, that has received and honored mail orders from North Carolinians. The court, accordingly, concludes that under the modified jurisdiction test Turbo Tek is "doing business" in North Carolina, thereby establishing venue under §1391(c).⁸

CONCLUSION

The court concludes that plaintiff complied with Fed.R.Civ.P. 4(c)(2)(C)(ii) in personally serving defendant, outside the forum state, with notice of this action. The court further concludes that defendant is "doing business" in North Carolina and thus venue is proper under 28 U.S.C. §1391(c). The court, accordingly, denies defendant's motion to dismiss.

Court of Appeals, Federal Circuit

In re Fine

No. 87-1319

Decided January 26, 1988

PATENTS

1. Patentability/Validity — Obviousness — Evidence of (§115.0903)

Patent and Trademark Office improperly rejected claimed invention for obviousness since nothing in cited references, either alone or in combination, suggests or teaches claimed invention, since there is consequently no support for PTO's conclusion that substitution of one type of detector for another in prior art system, resulting in claimed invention, would have been obvious, and since PTO therefore failed to satisfy its burden of establishing prima facie case of obviousness by showing some objective teaching or gener-

⁸ Because the court finds venue proper under §1391(c), it will not address whether the claims herein arose in North Carolina. See 28 U.S.C.

ally available knowledge that would lead one skilled in art to combine teachings of existing references.

2. Patentability/Validity — Obviousness — In general (§115.0901)

Obviousness is tested by what combined teachings of prior art references would have suggested to those of ordinary skill in art, not by whether particular combination of elements from such references might have been "obvious to try."

3. Patentability/Validity — Obviousness — Evidence of (§115.0903)

Patent and Trademark Office erred, in rejecting as obvious system for detecting and measuring minute quantities of nitrogen compounds, by failing to recognize that appealed claims can be distinguished over combination of prior art references, in view of evidence demonstrating that prior art does not teach claimed temperature range, despite some overlap of preferred temperature ranges for claimed invention and prior art, since purposes of preferred temperature ranges are different and overlap is mere happenstance.

4. Patentability/Validity — Obviousness — In general (§115.0901)

Dependent claims are non-obvious under 35 USC 103 if claims from which they depend are non-obvious.

Appeal from the U.S. Patent and Trademark Office Board of Patent Appeals and Interferences.

Application for patent by David H. Fine, Serial No. 512,374. From decision of Board of Patent Appeals and Interferences affirming rejection of application, applicant appeals. Reversed; Smith, circuit judge, dissenting with opinion.

Morris Relson and Darby & Darby, New York, N.Y., (Beverly B. Goodwin with them on the brief) for appellant.

Lee E. Barrett, associate solicitor, Arlington, Va., (Joseph F. Nakamura, solicitor, and Fred E. McKelvey, deputy solicitor, with him on the brief) for appellee.

Before Friedman, Smith, and Mayer, circuit judges.

Mayer, J.

David H. Fine appeals from a decision of the Board of Patent Appeals and Interfer-

ences of the United States Patent and Trademark Office (Board) affirming the rejection of certain claims of his application, Serial No. 512,374, and concluding that his invention would have been obvious to one of ordinary skill in the art and was therefore unpatentable under 35 U.S.C. §103. We reverse.

Background

A. The Invention.

The invention claimed is a system for detecting and measuring minute quantities of nitrogen compounds. According to Fine, the system has the ability to detect the presence of nitrogen compounds in quantities as minute as one part in one billion, and is an effective means to detect drugs and explosives, which emanate nitrogen compound vapors even when they are concealed in luggage and closed containers.

The claimed invention has three major components: (1) a gas chromatograph which separates a gaseous sample into its constituent parts; (2) a converter which converts the nitrogen compound effluent output of the chromatograph into nitric oxide in a hot, oxygen-rich environment; and (3) a detector for measuring the level of nitric oxide. The claimed invention's sensitivity is achieved by combining nitric oxide with ozone to produce nitrogen dioxide which concurrently causes a detectable luminescence. The luminescence, which is measured by a visual detector, shows the level of nitric oxide which in turn is a measure of nitrogen compounds found in the sample.

The appealed claims were rejected by the Patent and Trademark Office (PTO) under 35 U.S.C. §103. Claims 60, 63, 77 and 80 were rejected as unpatentable over Eads, Patent No. 3,650,696 (Eads) in view of Warnick, et al., Patent No. 3,746,513 (Warnick). Claims 62, 68, 69, 79, 85 and 86 were rejected as unpatentable over Eads and Warnick in view of Glass, et al., Patent No. 3,207,585 (Glass).

B. The Prior Art.

1. Eads Patent.

Eads discloses a method for separating, identifying and quantitatively monitoring sulfur compounds. The Eads system is used primarily in "air pollution control work in the scientific characterization of odors from sulfur compounds."

The problem addressed by Eads is the tendency of sulfur compounds "to adhere to or react with the surface materials of the sampling and analytical equipment, and/or react with the liquid or gaseous materials in the equipment." Because of this, the accura-

cy of measurement is impaired. To solve the problem, the Eads system collects an air sample containing sulfur compounds in a sulfur-free methanol solution. The liquid is inserted into a gas chromatograph which separates the various sulfur compounds. The compounds are next sent through a pyrolysis furnace where they are oxidized to form sulfur dioxide. Finally, the sulfur dioxide passes through a measuring device called a microcoulometer which uses titration cells to calculate the concentration of sulfur compounds in the sample.

2. Warnick Patent.

Warnick is directed to a means for detecting the quantity of pollutants in the atmosphere. By measuring the chemiluminescence of the reaction between nitric oxide and ozone, the Warnick device can detect the concentration of nitric oxide in a sample gaseous mixture.

Warnick calls for "continuously flowing" a sample gaseous mixture and a reactant containing ozone into a reaction chamber. The chemiluminescence from the resulting reaction is transmitted through a light-transmitting element to produce continuous readouts of the total amount of nitric oxide present in the sample.

3. Glass Patent.

The invention disclosed in Glass is a device for "completely burning a measured amount of a substance and analyzing the combustion products." A fixed amount of a liquid petroleum sample and oxygen are supplied to a flame. The flame is then spark-ignited, causing the sample to burn. The resulting combustion products are then collected and measured, and from this measurement the hydrogen concentration in the sample is computed.

C. The Rejection.

The Examiner rejected claims 60, 63, 77 and 80 because "substitution of the [nitric oxide] detector of Warnick for the sulfur detector of Eads would be an obvious consideration if interested in nitrogen compounds, and would yield the claimed invention." He further asserted that "Eads teaches the [claimed] combination of chromatograph, combustion, and detection, in that order. . . . Substitution of detectors to measure any component of interest is well within the skill of the art." In rejecting claims 62, 68, 69, 79, 85 and 86, the Examiner said, "Glass et al. teach a flame conversion means followed by a detector, and substitution of the flame conversion means of Glass et al. for the furnace of Eads would be an obvious equivalent and would yield the claimed invention." The Board affirmed the Examiner's rejection.

Discussion

A. Standard of Review.

Obviousness under 35 U.S.C. §103 is "a legal conclusion based on factual evidence." *Stratoflex, Inc. v. Aeroquip Corp.*, 713 F.2d 1530, 1535, 218 USPQ 871, 876 (Fed. Cir. 1983) (quoting *Stevenson v. Int'l Trade Comm'n*, 612 F.2d 546, 549, 204 USPQ 276, 279 (CCPA 1979)). Therefore, an obviousness determination is not reviewed under the clearly erroneous standard applicable to fact findings, *Raytheon Co. v. Roper Corp.*, 724 F.2d 951, 956, 220 USPQ 592, 596 (Fed. Cir. 1983); it is "reviewed for correctness or error as a matter of law." *In re De Blauwe*, 736 F.2d 699, 703, 222 USPQ 191, 195 (Fed. Cir. 1984).

To reach a proper conclusion under §103, the decisionmaker must step backward in time and into the shoes worn by [a person having ordinary skill in the art] when the invention was unknown and just before it was made. In light of *all* the evidence, the decisionmaker must then determine whether . . . the claimed invention as a whole would have been obvious at *that* time to *that* person. 35 U.S.C. §103. The answer to that question partakes more of the nature of law than of fact, for it is an ultimate conclusion based on a foundation formed of all the probative facts.

Panduit Corp. v. Dennison Mfg. Co., 810 F.2d 1561, 1566, 1 USPQ2d 1593, 1595-96 (Fed. Cir. 1987).

B. Prima Facie Obviousness.

Fine says the PTO has not established a *prima facie* case of obviousness. He contends the references applied by the Board and Examiner were improperly combined, using hindsight reconstruction, without evidence to support the combination and in the face of contrary teachings in the prior art. He argues that the appealed claims were rejected because the PTO thought it would have been "obvious to try" the claimed invention, an unacceptable basis for rejection.

[1] We agree. The PTO has the burden under section 103 to establish a *prima facie* case of obviousness. See *In re Piasecki*, 745 F.2d 1468, 1471-72, 223 USPQ 785, 787-87 (Fed. Cir. 1984). It can satisfy this burden only by showing some objective teaching in the prior art or that knowledge generally available to one of ordinary skill in the art would lead that individual to combine the relevant teachings of the references. *In re Lahu*, 747 F.2d 703, 705, 223 USPQ 1257, 1258 (Fed. Cir. 1984); see also *Ashland Oil, Inc. v. Delta Refining & Refractories, Inc.*

776 F.2d 281, 297 n.24, 227 USPQ 657, 667 n.24 (Fed. Cir. 1985); *ACS Hosp. Sys., Inc. v. Montefiore Hosp.*, 732 F.2d 1572, 1577, 221 USPQ 929, 933 (Fed. Cir. 1984). This it has not done. The Board points to nothing in the cited references, either alone or in combination, suggesting or teaching Fine's invention.

The primary basis for the Board's affirmation of the Examiner's rejection was that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. The Board reiterated the Examiner's bald assertion that "substitution of one type of detector for another in the system of Eads would have been within the skill of the art," but neither of them offered any support for or explanation of this conclusion.

Eads is limited to the analysis of sulfur compounds. The particular problem addressed there is the difficulty of obtaining precise measurements of sulfur compounds because of the tendency of sulfur dioxide to adhere to or react with the sampling analytic equipment or the liquid or gaseous materials in the equipment. It solves this problem by suggesting that the gaseous sample containing sulfur compounds be absorbed into sulfur-free methanol and then inserted into a gas chromatograph to separate the sulfur compounds.

There is no suggestion in Eads, which focuses on the unique difficulties inherent in the measurement of sulfur, to use that arrangement to detect nitrogen compounds. In fact, Eads says that the presence of nitrogen is undesirable because the concentration of the titration cell components in the sulfur detector is adversely affected by substantial amounts of nitrogen compounds in the sample. So, instead of suggesting that the system be used to detect nitrogen compounds, Eads deliberately seeks to avoid them; it warns against rather than teaches Fine's invention. See *W. L. Gore & Assoc. v. Garlock, Inc.*, 721 F.2d 1540, 1550, 220 USPQ 303, 311 (Fed. Cir. 1983) (error to find obviousness where references "diverge from and teach away from the invention at hand"). In the face of this, one skilled in the art would not be expected to combine a nitrogen-related detector with the Eads system. Accordingly, there is no suggestion to combine Eads and Warnick.

Likewise, the teachings of Warnick are inconsistent with the claimed invention, to some extent. The Warnick claims are directed to a gas stream from engine exhaust "continuously flowing the gaseous mixtures into the reaction chamber" to obtain "con-

tinuous readouts" of the amount of nitric oxide in the sample. The other words, it contemplates measuring the total amount of nitric oxide in a continuously flowing gaseous mixture of unseparated nitrogen constituents. By contrast, in Fine each nitrogen compound constituent of the gaseous sample is retained in the Chromatograph for an individual time period so that each exits in discrete, time-separated pulses.* By this process, each constituent may be both identified by its position in time sequence, and measured. The claimed system, therefore, diverges from Warnick and teaches advantages not appreciated or contemplated by it.

Because neither Warnick nor Eads, alone or in combination, suggests the claimed invention, the Board erred in affirming the Examiner's conclusion that it would have been obvious to substitute the Warnick nitric oxide detector for the Eads sulfur dioxide detector in the Eads system. *ACS Hosp. Sys.*, 732 F.2d at 1575-77, 221 USPQ at 931-33. The Eads and Warnick references disclose, at most, that one skilled in the art might find it obvious to try the claimed invention. But whether a particular combination might be "obvious to try" is not a legitimate test of patentability. *In re Geiger*, 815 F.2d 868, 688, 2 USPQ2d 1276, 1278 (Fed. Cir. 1987); *In re Goodwin*, 576 F.2d 375, 377, 198 USPQ 1, 3 (CCPA 1978).

[2] Obviousness is tested by "what the combined teachings of the references would have suggested to those of ordinary skill in the art." *In re Keller*, 642 F.2d 413, 425, 208 USPQ 871, 881 (CCPA 1981). But it "cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination." *ACS Hosp. Sys.*, 732 F.2d at 1577, 221 USPQ at 933. And "teachings of references can be combined *only* if there is some suggestion or incentive to do so." *Id.* Here, the prior art contains none.

Instead, the Examiner relies on hindsight in reaching his obviousness determination.

* The Solicitor argues that the contents of Attachment C of Fine's brief were not before the Board and may not properly be considered here. However, we need not rely on Attachment C. It is merely illustrative of the qualitative separation of nitrogen compounds which occurs in Fine's system. The fact that the various constituents exit at discrete intervals is shown by the specification which was before the Board and which may appropriately be considered on appeal. See, e.g., *Astra-Sjuco, A.B. v. United States Int'l Trade Comm'n*, 629 F.2d 682, 686, 207 USPQ 1, 5 (CCPA 1980) (claims must be construed in light of specification).

But this court has said, "To imbue one of ordinary skill in the art with knowledge of the invention in suit, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome wherein that which only the inventor taught is used against its teacher." *W.L. Gore*, 721 F.2d at 1553, 220 USPQ at 312-13. It is essential that "the decisionmaker forget what he or she has been taught at trial about the claimed invention and cast the mind back to the time the invention was made . . . to occupy the mind of one skilled in the art who is presented only with the references, and who is normally guided by the then-accepted wisdom in the art." *Id.* One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

C. Advantage Not Appreciated by the Prior Art.

[3] The Board erred not only in improperly combining the Eads and Warnick references but also in failing to appreciate that the appealed claims can be distinguished over that combination. A material limitation of the claimed system is that the conversion to nitric oxide occur in the range of 600°C to 1700°C. The purpose of this limitation is to prevent nitrogen from other sources, such as the air, from being converted to nitric oxide and thereby distorting the measurement of nitric oxide derived from the nitrogen compounds of the sample.

The claimed nitric oxide conversion temperature is not disclosed in Warnick. Although Eads describes a preferred temperature of 675°C to 725°C, the purpose of this range is different from that of Fine. Eads requires the 675°C to 725°C range because it affords a temperature low enough to avoid formation of unwanted sulfur trioxide, yet high enough to avoid formation of unwanted sulfides. Fine's temperature range, in contrast, does not seek to avoid the formation of sulfur compounds or even nitrogen compounds. It enables the system to break down the nitrogen compounds of the sample while avoiding the destruction of background nitrogen gas. There is a partial overlap, of course, but this is mere happenstance. Because the purposes of the two temperature ranges are entirely unrelated, Eads does not teach use of the claimed range. *See In re Geiger*, 815 F.2d at 688, 2 USPQ2d at 1278. The Board erred by concluding otherwise.

D. Unexpected Results.

Because we reverse for failure to establish a *prima facie* case of obviousness, we need not reach Fine's contention that the Board

failed to accord proper weight to the objective evidence of unexpected superior results. *Id.*

E. The "Flame" Claims.

[4] Claims 62, 68, 69, 79, 85 and 86 relate to the oxygen-rich flame conversion means of the claimed invention. These "flame" claims depend from either apparatus claim 60 or method claim 77. Dependent claims are non-obvious under section 103 if the independent claims from which they depend are nonobvious. *Hartness Int'l, Inc. v. Simplimatic Eng'g Co.*, 819 F.2d 1100, 1108, 2 USPQ2d 1826, 1831 (Fed. Cir. 1987); *In re Abele*, 684 F.2d 902, 910, 214 USPQ 682, 689 (CCPA 1982); *see also In re Sernaker*, 702 F.2d 989, 991, 217 USPQ 1, 3 (Fed. Cir. 1983). In view of our conclusion that claims 60 and 77 are nonobvious, the dependent "flame" claims are also patentable.

Conclusion

The Board's decision affirming the Examiner's rejection of claims 60, 62, 63, 68, 69, 77, 79, 80, 85 and 86 of Fine's application as unpatentable over the prior art under 35 U.S.C. §103 is **REVERSED**.

Smith, circuit judge, dissenting.

I respectfully dissent. I am of the firm belief that the prior art references, relied upon by the PTO to establish its *prima facie* case of obviousness, in combination teach and suggest Fine's invention to one skilled in the art. Also, I firmly believe that Fine failed to rebut the PTO's *prima facie* case. On this basis, I would affirm the board's determination sustaining the examiner's rejection, pursuant to 35 U.S.C. §103, of Fine's claims on appeal before this court.

Court of Appeals, Federal Circuit

Advance Transformer Co. v. Levinson

No. 87-1011

Decided January 28, 1988

PATENTS

1. Infringement — Construction of claims (§115.03)

Patent construction — Patent Office proceedings (§125.05)

Patent construction — Prosecution history estoppel (§125.09)

Federal district court, in action for declaration of non-infringement of patent, proper-